E. F. JOEHRENDT.

FEEDING MECHANISM FOR INKING RIBBONS FOR PRINTING PRESSES.

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1,228,928.

Patented June 5, 1917.

Fig. 1

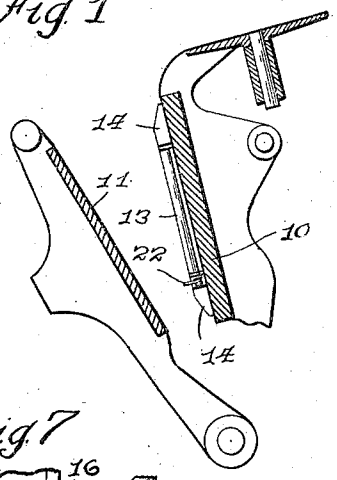


Fig. 3

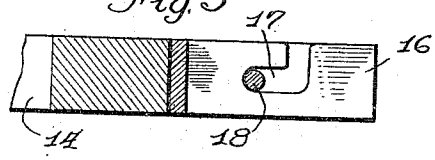


Fig. 4

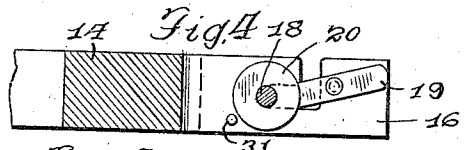


Fig. 5

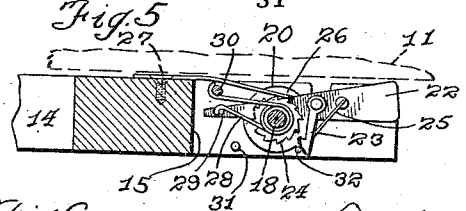


Fig. 7

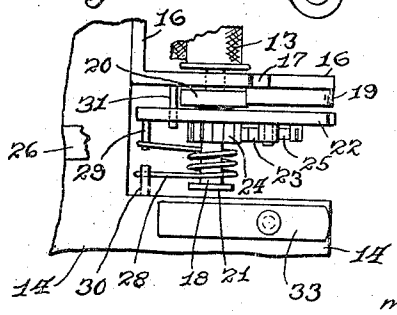


Fig. 6

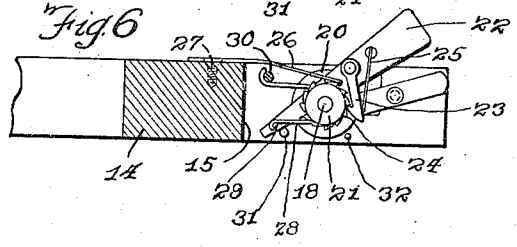
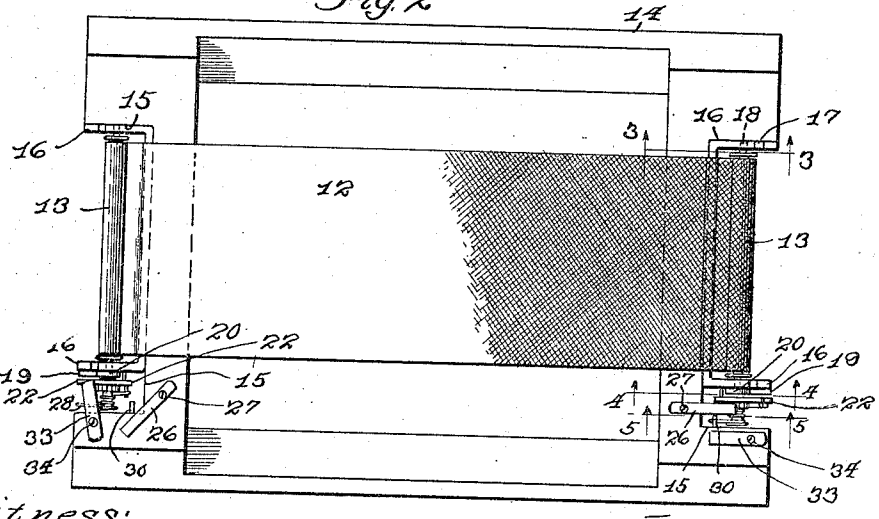


Fig. 2



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THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

EDWARD F. JOEHRENDT, OF CHICAGO, ILLINOIS.

FEEDING MECHANISM FOR INKING-RIBBONS FOR PRINTING-PRESSES.

1,228,928. Specification of Letters Patent. Patented June 5, 1917.

Application filed August 7, 1916. Serial No. 113,432.

To all whom it may concern:

Be it known that I, EDWARD F. JOEHRENDT, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Feeding Mechanism for Inking-Ribbons for Printing-Presses, of which the following is a specification, reference being had therein to the accompanying drawing.

My invention relates to feed-mechanism for inking ribbons for printing presses, and its object is to provide a new and useful automatic feed for inking ribbons so that matter may be printed on printing presses with the usual characteristics of matter printed with the ink ribbon of a type-writing machine.

In the accompanying drawing illustrating a practical embodiment of my invention:

Figure 1 is a view of a printing press equipped with a ribbon feed-mechanism in accordance with my invention;

Fig. 2 is a top plan view on an enlarged scale of an embodiment of the ribbon feed-mechanism;

Fig. 3 is a detail view on the line 3—3 of Fig. 2;

Fig. 4 is a detail view on the line 4—4 of Fig. 2;

Fig. 5 is a detail view on the line 5—5 of Fig. 2 with the platen of Fig. 1 added to show the parts in position when an impression is made;

Fig. 6 is a view similar to Fig. 5 with the parts in position after the ribbon-feed has operated following an impression, and

Fig. 7 is an enlarged detail plan view.

My invention may be practised with any suitable form of printing press, and in the accompanying drawing I show it in connection with an ordinary Gordon press in which the type-bed 10 and platen 11 are brought in adjacent parallelism when the impression is made, these parts being arranged and operated in the usual manner incident to this type of press. The impression devices on the bed of this press are overlaid with an inking-ribbon 12 which is of sufficient width to cover the impression surface and is mounted at its ends on spools or rollers 13, which are removably carried in a chase or open frame 14 adapted to be detachably clamped to the bed by any suitable devices. The outer margins of the ends of the frame are recessed or cut-away as shown at 15 so that the ribbon-mechanism is carried within the outline of the frame, the ends of the recesses having bearing-plates 16 provided with undercut bearings 17 for the shafts 18 of the rolls, which are held therein against accidental displacement by twin-buttons 19 pivoted on the plates 16.

The automatic ribbon-feeding mechanism is adapted to move the ribbon step-by-step across the impression surface or type between printing impressions, and preferably is associated with each spool or roller so that the ribbon may be fed back and forth across the type. In practice one of the bearing plates 16 in each recess is spaced away from the end of the recess as shown to provide space for the ribbon-feeding mechanism for the associated spool, and one end of the shaft 18 of the associated spool extends into this space where it is provided with a pair of fixed disks 20 and 21 respectively, the disk 20 lying loosely against the plate 16 and the disk 21 being located at the extended end of the shaft. An operating lever 22 is loosely mounted at its lower end on the shaft adjacent the disk 20, with its upper end extending above the plane of the frame in position to be struck by the platen 11 to turn it on the shaft 18 as a pivot when the platen and bed are brought into parallelism to make an impression as shown in Fig. 5. The lever 22 carries a pivoted pawl 23 adapted to successively engage the teeth of a ratchet-wheel 24 fixed on the associated shaft 18 to rotate its spool 13 step-by-step to intermittently advance the ribbon across the type, the pawl being held in engagement with the teeth by a suitable spring 25 on the lever. A dog 26, preferably in the form of a leaf spring pivoted at one of its ends as at 27 to the frame 14, engages the ratchet-teeth to prevent the associated spool from moving in reverse direction to unwind the ribbon therefrom, and also as a brake to prevent any accidental winding action or movement of the spool, and the dog also is adapted to be swung on its pivot into and out of operative position according as its associated spool acts as the winding or the idle roller for the ribbon. A spring 28 is coiled loosely around the shaft 18 between the disks 20 and 21, with its lower end secured to a pin 29 on the lower or inner end of the lever 22, and its upper end detachably connected with a pin 30 fixed in the frame and projecting into

the recess above the pin 29, whereby when the upper end of the spring is engaged with its pin 30 the spring is put under tension and tends to move the lever in the direction to cause the pawl to turn the ratchet-wheel and to project the upper or outer end of the lever above the plane of the frame, the limit of movement of the lever in this direction being determined by a stop-pin 31 projecting from the plate 16 into the path of the lower end of the lever. A release pin 32 for the pawl projects from the plate 16 into the path of the pawl to disengage it from the ratchet when the lever is at the limit of its movement on its down stroke. An arm 33 is pivoted at 34 on each end of the frame adjacent the lever 22 and is adapted to be swung into position above the lever and the upper end of the associated spring, when the latter is disconnected from its pin 30 and turned outwardly, to hold the lever and the disconnected end of the spring flush with the plane of the frame so that the lever and its associated parts are inactive, the corresponding dog 26 also being turned out of operative position, all as shown at the left hand end of Fig. 2.

The ink ribbon in the present embodiment passes from the lower portion of each spool up through the opening between the spool and the inner margin of its recess and thence across the central opening of the frame. Assuming that each roller of the ribbon is provided with a feed mechanism, the free end of the spring 28 of the spool that is to wind the ribbon is connected to its pin 30, with the corresponding arm 33 turned out of the path of the lever so that the upper or outer end of the lever stands under spring action above the plane of the frame, with its pawl engaging a ratchet-tooth and the dog engaging another tooth, as shown in Fig. 6 and at the right hand end of Fig. 2, and the free end of the spring of the spool from which the ribbon is to be unwound is disconnected from its pin 30 and is pressed with the upper end of its lever 22 down to position to underlie its arm 33, as shown at the left hand end of Fig. 2. When the press is operated and the bed and platen are in parallelism to make an impression, the platen abuts against the outer end of the operative lever 22 and rocks it on its pivot down into substantially the plane of the frame, causing the pawl to pass idly over the next ratchet-tooth when the lower beveled end of the pawl engages the pin 32 which cams the pawl slightly away from the ratchet; the relation and arrangement of the parts are such that during the initial part of each down stroke of the lever its pawl passes over the next tooth and then during the remainder of its down stroke it is cammed away from the ratchet, so that during the initial part of the upstroke of the lever its pawl will not operate the ratchet but will move idly on the pin and then will engage the next ratchet-tooth during the remainder of its upstroke, this idle movement of the pawl occurring during the initial separation of the type-bed and platen after an impression and so allowing the ribbon to remain at rest or stand idle until the paper is moved out of contact with it to preclude smearing or blurring the print. The down stroke of the lever by the platen places its spring under tension, and when the platen and bed separate the spring causes the upstroke of the lever whose pawl now travels along the incline of a tooth or over the pin as the case may be and then engages the next tooth and turns the spool the prescribed distance determined by the stop pin 31. When it is desired to reverse the direction of travel of the ribbon the spring of the operative lever is detached from its pin 30 and this lever with the detached end of its spring is turned down under its arm 33, the corresponding pawl also being swung to inoperative position, and the spring of the other lever is connected to its pin 30, with the corresponding pawl and arm in operative and inoperative positions respectively.

When the lever 22 is in this inoperative position the pin 32 cams the pawl of the lever away from its ratchet-wheel to release the latter so that its associated roller may turn to unwind the ribbon.

I claim:—

1. In a device of the class described, the combination with a printing press whose type-bed and platen are brought into parallelism to produce printing impressions, of an inking-ribbon between the platen and type-bed, a roller for feeding said ribbon, a spring-actuated lever adjacent the roller and adapted to be moved by the platen to put its spring under tension when the press is operated to make an impression, a pawl on the lever to turn the roller after the separation of the type bed and platen, and a release pin to idle said pawl during the initial part of said separation.

2. In a device of the class described, the combination with a printing press whose type-bed and platen are brought into parallelism to produce printing impressions, of an inking-ribbon between the platen and type-bed, a frame having bearings, a roller for feeding said ribbon, a roller shaft in said bearings and projecting at one end, a lever pivotally mounted on the projecting end of the shaft and adapted to be moved in one direction by the platen when the press is operated to make an impression, a spring coiled about the projecting end of the shaft and connected to the lever and frame to be put under tension by said movement of the lever, and a pawl and ratchet connection be-

tween the lever and roller to rotate the latter when the spring is released.

3. In a device of the class described, the combination with a printing press having a type-bed and platen, one of said elements being movable with relation to the other to produce printing impressions, of an inking-ribbon between the platen and type bed, a roller for feeding said ribbon, a ratchet wheel on the roller, a spring-actuated lever operated by said other element of the press to put its spring under tension when the press is operated, a pawl on the lever to engage the ratchet, and means to idle the pawl during the initial part of the return of the lever until the type-bed and platen are separated.

4. In a device of the class described, the combination with printing press having a type-bed and platen, of an inking-ribbon between the platen and type-bed, a frame, rollers for the ribbon on the frame, a lever pivoted on one of the rollers, a ratchet-wheel on the roller, a pawl on the lever for the ratchet-teeth, a cam to release the pawl from the ratchet-wheel when the lever is moved in one direction, and a spring engaging the lever and detachably engaging the frame under tension, and an arm pivoted on the frame to swing over the lever and detached end of the spring.

5. In a device of the class described, the combination with printing press having a type bed and platen, of an inking-ribbon between the platen and type-bed, a frame, rollers for the ribbon on the frame, a lever pivoted on one of the rollers, a ratchet-wheel on the roller, a pawl on the lever for the ratchet-teeth, a pin in the path of the pawl to release the latter from the ratchet-wheel when the lever is moved in one direction, a pin on the frame, a spring carried by the roller and engaging the lever at one end and detachably engaging the pin at its other end, and an arm pivoted to the frame to swing over the lever and detached end of the spring.

6. In a device of the class described, the combination with printing press having a type-bed and platen, of an inking-ribbon between the platen and type-bed, rollers for the ribbon, a frame carrying the rollers, a lever pivoted on one of the rollers and adapted to be moved in one direction by the platen when an impression is made, a ratchet and pawl connection between the roller and its lever, a spring connected to the lever, detachable connections between the spring and frame, and an arm pivoted on the frame to swing over the lever and the detached end of the spring.

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Witnesses:
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Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."